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Optical and double probe measurements of helicon argon plasma source in axially varying magnetic field intensity ALI GULEC, Suleyman Demirel Univ, FERHAT BOZDUMAN, ERDOGAN TEKE, Suleyman Demirel Univ. Physics Department, AHMED M. HALA, KACST, ERDAL DIKMEN, Suleyman Demirel Univ. Physics Department, AYSEGUL OKSUZ, MELEK KIRISTI, Suleyman Demirel Univ. Chemistry Department, LUTFI OKSUZ, Suleyman Demirel Univ. Physics Department — In the helicon plasma sources the external magnetic field is usually generated by electromagnets coaxial with the source tube. The magnetic fields intensities can be vary from 100 G to 1000 G for different plasma studies. In this work permanent magnets configuration, which is cylindrical and surrounding 20 cm region of a long 5.5 cm diameter cylindrical quartz tube, was used for the magnetic field. The magnet system is producing 650 G magnetic field intensity in the upstream and downstream of the field symmetrically but the intensity is decreasing down to 350 G in the middle of the magnets configuration. Nagoya type III antenna was placed into the magnetic field region over the quartz tube. The antenna was driven by different rf power at 13.56 MHz. The emission spectrum of argon plasma at high and low magnetic field intensity positions will be taken. The axial dependence of plasma temperature and density will be given by the double probe measurements.

Ali Gulec
Suleyman Demirel Univ

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